



MAR 24 1989

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RETURN RECEIPT REQUESTED

H. Gilbert Weil
 Union Carbide Corporation
 P.O. Box 670
 Bound Brook, New Jersey

Re: SCP-Carlstadt Site, Administrative Orders Index No. II-
 CERCLA-50114 and II-CERCLA-60102

Dear Mr. Weil:

This is to transmit EPA's comments on ERM's "Interim Status Report for Phase II" of the Feasibility Study ("FS") being conducted by Respondents to the above-referenced Administrative Orders. These comments were verbally transmitted to and discussed with ERM and Respondents' representatives at a meeting on March 6, 1989. Written comments are being provided in order to further assist respondents in preparation of the Preliminary FS report.

section comment

all For illustration purposes, conceptual figures should be provided for each alternative.

2.1.1 In general, the alternatives are not described in enough detail. The intention of the groundwater alternatives presented is unclear - is the purpose to clean the site groundwater independently, or to dewater the site for implementation of soil remediation? Other factors which must be addressed include time frames of operation, volume of water to be treated, pumping rates, and groundwater collection methods. Will barriers be installed around the site? Can the groundwater treatment unit also handle any fluids/wastewaters that will be generated from an on-site soil treatment unit (i.e. incineration, in-situ flushing, vitrification), where the concentrations of contaminants will be higher than in site groundwater? All of these details must be addressed to ensure integration of media alternatives.

The description of alternatives also leaves many factors unresolved - when will the decisions regarding polishing steps be made? The treatability

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- 2.1.1 testing results may provide some information, however, biological and precipitation tests are not being performed. Therefore, engineering evaluations of the treatment units should be performed now, in order to perform alternative screening. Some other treatment units may need to be added, such as pH adjustment after chemical precipitation and maybe filtration prior to GAC and UV/Peroxidation.

In the description of groundwater alternatives, the purpose of each technology should be spelled out clearly. In Alternative GW-3, are both the oxidation and biological treatment steps necessary? Chemical Precipitation could be done first, since the removal of suspended solid will help oxidation. Also, the biological treatment units, sequencing batch reactors should be defined more clearly (anaerobic vs. aerobic, fixed film vs. activated sludge, capabilities, contact time, and operation).

In alternatives GW-5, GW-6, and GW-7, how will the GAC continue to remove organics if saturated? What will be the disposition of the concentrated liquid waste stream?

- 2.1.2 Again, more detail must be provided concerning the soil alternatives - what are the expected treatment times, what will be dewatering methods, will a wet excavation/grout curtain method be used? In order to develop costs for these alternatives, more details regarding implementation must be presented.

In alternative S/S-4, how will VOC emission be controlled during excavation? Some clean soil back fill would be required due to volume reduction. How will wastewater from the air quality control system be disposed of?

In alternative S/S-5, Have any off-site incineration facilities been identified? If so, pre-treatment requirements must be addressed. Consideration should be given to the potential need for further dewatering/moisture control prior to off-site shipment of soils.

Shouldn't Alternative S/S-6 include dewatering along with the excavation? As has been suggested repeatedly, some of this dewatered groundwater may be used in the stabilization process, which would reduce the volume of groundwater requiring treatment. If wet excavation is proposed, should groundwater barriers be installed to control the moisture content for fixation?

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- 2.1.2 Also, the significant volume increase must be addressed.

In Alternative S/S-7, how will dewatering be done to prevent further infiltration of groundwater into the treatment area? Will the groundwater table be maintained constantly below the treatment area, across the entire site? Will barriers be installed or will vitrification be performed around the site perimeter, first? Cost comparisons between wet vs. dry vitrification should be made. Clean backfill may be required with this alternative, too.

The land disposal restrictions should rule out Alternative S/S-8; this can be addressed in Phase I. (Also applies to Alternative T-5)

Why has in-situ flushing reappeared in Alternative S/S-9, when it had been screened out in Phase I due to non-homogeneity of the fill material. What is the objective of in-situ flushing here? What type of delivery system is expected - spraying, ponding, infiltration beds? What about the potential for contaminating other aquifers at the site, or will the pipe spacing preclude this? What type of fluids are being considered? Is dewatering necessary for this alternative? Why are two different collection systems being proposed - drains for flushing and extraction wells for groundwater? More detail must be provided to explain the drain system and how it will work. What is the expected treatment rate for flushing? Consideration must be given to the expected concentrations of contaminants in the fluid vs. those in the site groundwater, as this will effect the selection of the treatment system.

For all alternatives including in-situ stabilization, consideration should be given to fixating the soils around the site perimeter first, in order to form a groundwater barrier to minimize the volume of groundwater to be treated.

In Alternative S/S-10, dewatering would be required along with the excavation. Why is a RCRA unit required for on-site disposal. The volume increase from stabilization must be addressed.

In alternative S/S-11, why are both in-situ vacuuming and in-site situ-flushing necessary? In-situ vacuuming is not expected to be effective in saturated soils - will the dewatering method maintain unsaturated conditions?

section comment

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2.1.2 In alternative S/S-12, how will metals be treated?
it is difficult to apply acid extraction in-situ to
remove heavy metals.

How will volatiles be handled in Alternative S/S-13?
Has enhanced volatilization been considered?

What type of reinjection system is proposed for
Alternative S/S-14?

2.1.3 It is unlikely that any of the tank alternatives will
be feasible, as presented. Pre-treatment will probably
be necessary for any of the alternatives discussed.
Tank alternatives involving sequential treatment
processes should be developed.

Table 3 The screening comments for each groundwater
alternatives are nearly identical. Can't any
distinguishing remarks be made, i.e. the effects of
longer treatment time on short-term worker/
environmental exposure?

The groundwater treatment alternatives will meet ARARs
during remediation; action-specific requirements must
be met.

For the no action and limited action groundwater
alternatives, the last statement "Short-term
Protectiveness" is incorrect; water table aquifer is
connected with an aquifer which is a potable water
supply.

For the other groundwater alternatives, the wording in
the last statement under "Short-Term Protectiveness"
should be revised. What is meant by "no acceptable
short-term risks"? Is the correct word "significant"?
If so, explain why there are no significant risks.

Alternative S/S-3 does not satisfy remedial action
objectives.

Why are there short-term risks to workers and community
during implementation of S/S-4? Wouldn't there be
controls for air emissions?

Some further explanation should be provided to justify
why some soil alternatives will achieve TBCs and others
will not. For example, why will S/S-9 (in-situ
flushing/ stabilization) achieve TBCs and S/S-10
(extraction/stabilization) will not? Also, how will
S/S-12 (in-situ vacuuming/flushing) achieve TBCs? What
about metals?

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Table 3 Why are pilot studies referred to in Alternative S/S-6? There are none being conducted for vitrification.

In S/S-13 and S/S-14, there is no excavation components to the alternatives, since they both apply technologies in-situ, therefore, there should be no risks related to excavation.

Additional distinguishing comments should be made, i.e., relative risks for short-term exposure, exposure to solvents for relevant alternatives, effects of any residual solvents, or other treatment additives.

Table 4 More detailed comparisons should be made between the alternatives - based on this table, they are all equally implementable. Comparisons can be made in terms of complexity of operation, the need for skilled operators, potential for system upsets, required treatment units, reliability, energy and chemical additive requirements, and other auxiliary process requirements.

For groundwater alternatives, the frequency of sampling/analysis has not yet been determined; sampling may be more, or less often than semi-annually.

For soil alternatives, explanations should be provided as to why the technology capabilities are limited. Why are land use restrictions applicable to S/S-12? Why are land use restrictions applicable to S/S-11 when Table 3 indicates that TBCs will be achieved? Why is limited equipment availability applicable to incineration alternatives, but not others such as extraction?

For S/S-4, local opposition to this alternative can not be predicted at this time.

general An additional table should be prepared presenting a rating of the screening criteria, in terms of high, medium, and low, for each alternative, so that comparisons of alternatives can be made.

As discussed at the March 6th meeting, the Phase II report was incomplete. This phase was supposed to cover "screening" of alternatives - the Report submitted to EPA did not follow through the screening process. No cost evaluations or comparisons were presented. While I realize that treatability study results will be incorporated when available, the FS could certainly have proceeded further pending receipt of these results.

As you may notice, many of the comments provided herein were provided to ERM prior to the March 6th meeting, including

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comments relating to dewatering, disposal of treated fluids, and increases in material volume relating to stabilization alternatives.

I am concerned, based upon the Phase I and Phase II reports, that the FS is not being conducted in a thorough and technically sound manner. I trust that you will ensure that all of EPA's comments on these reports are addressed, and reiterate my staff's request to informally review the work which has been done to complete Phase II and Phase III prior to submission of the Preliminary FS report by April 1, 1989.

If you have any questions regarding these comments, please contact Janet Feldstein of my staff, at (212) 264-0613.

Sincerely yours,

Raymond Basso, Chief
New Jersey Compliance Branch

cc: William Warren, Esq.
Thomas Armstrong, General Electric
Pamela Lange, NJDEP

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